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A new species of the genus *Protapatophysis* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 (Coleoptera: Cerambycidae) from Pakistan

Новый вид жуков-дровосеков рода *Protapatophysis* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 (Coleoptera: Cerambycidae) из Пакистана

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KEY WORDS: Coleoptera, Cerambycidae, *Protapatophysis*, new species, Pakistan, Hindukush.
КЛЮЧЕВЫЕ СЛОВА: Coleoptera, Cerambycidae, *Protapatophysis*, новый вид, Пакистан, Гиндукуш.

ABSTRACT. A new species, *Protapatophysis hindukushensis* Miroshnikov, **sp.n.**, is described from Pakistan. It differs from all congeners by the somewhat peculiar shape of the lateral tubercles of the pronotum, the structure of the genitalia, as well as by the poorly developed discal tubercles of the pronotum and the shorter antennae, especially in comparison with *P. kashmiriana* (Semenov, 1901), *P. vartianae* (Heyrovský, 1971) and *P. kabakovi* Danilevsky, 2011.

РЕЗЮМЕ. Описан новый вид *Protapatophysis hindukushensis* Miroshnikov, **sp.n.** из Пакистана. Он отличается от всех видов рода несколько своеобразной формой боковых бугров переднеспинки, строением гениталий, а также слабо развитыми буграми на диске переднеспинки и более короткими усиками, особенно по сравнению с *P. kashmiriana* (Semenov, 1901), *P. vartianae* (Heyrovský, 1971) и *P. kabakovi* Danilevsky, 2011.

Introduction

Until now, four species of the genus *Protapatophysis* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 have been known [Danilevsky, 2011; Miroshnikov, 2014], namely *P. kashmiriana* (Semenov, 1901), *P. montana* (Gahan, 1906), *P. vartianae* (Heyrovský, 1971) and *P. kabakovi* Danilevsky, 2011. However, with respect to one male originating from the northernmost parts of Pakistan (Hindukush, Chitral Valley), it was pointed out [Miroshnikov, 2014: 19] that this specimen most likely belongs to a yet undescribed species.

This paper describes a new species based just that male.

The material treated here belongs to the following institutional and private collections:

BMNH — Natural History Museum (London, United Kingdom);
ZIN — Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia);
cAM — collection of Alexandr Miroshnikov (Krasnodar, Russia);
cSM — collection of Sergey Murzin (Moscow, Russia).

Protapatophysis hindukushensis Miroshnikov, **sp.n.**
Figs 1, 9, 17, 25, 33.

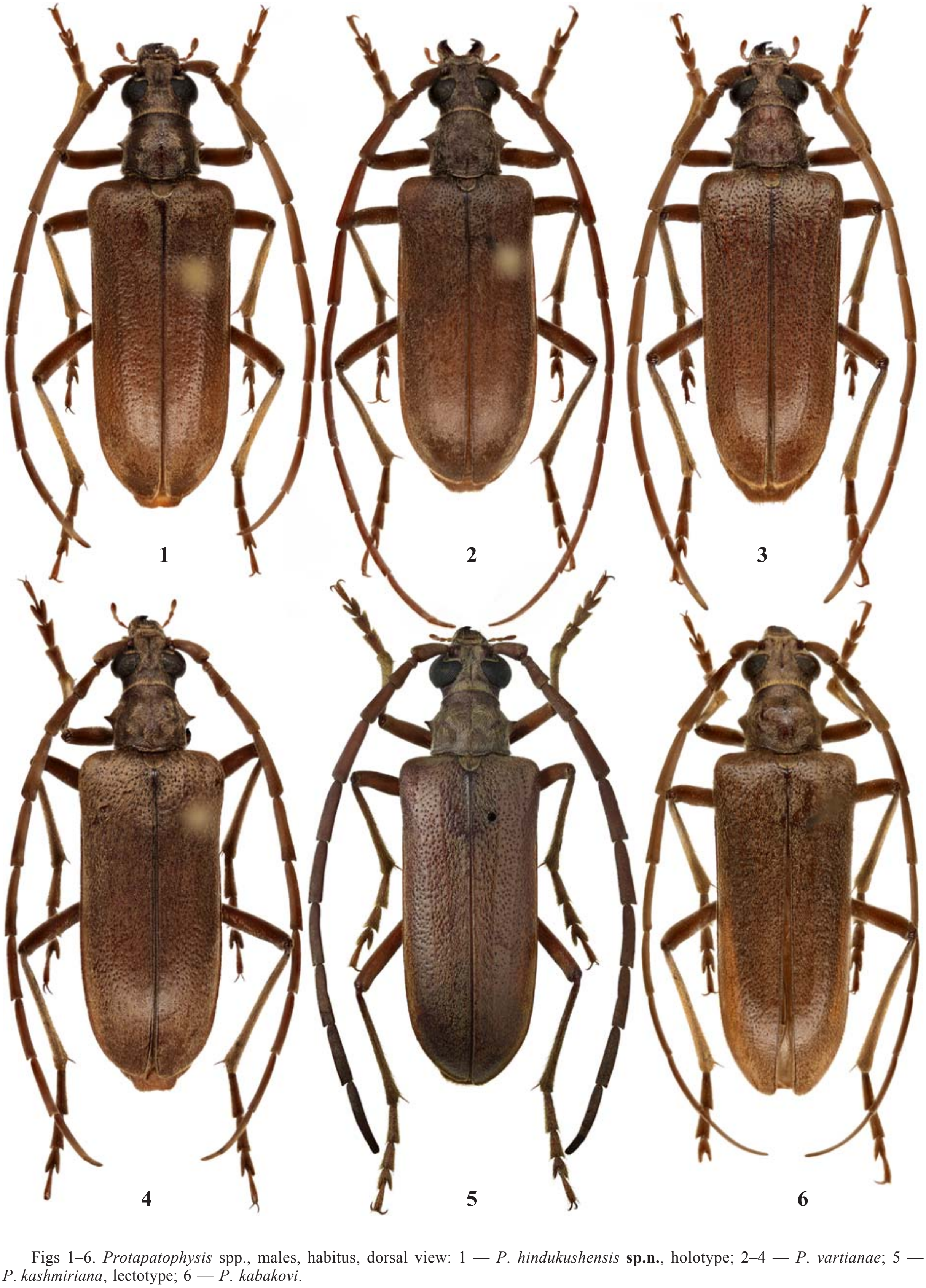
Protapatophysis sp.: Miroshnikov, 2014: 19 (Pakistan, Hindukush, Chitral Valley).

MATERIAL. Holotype ♂ (cAM) (Fig. 1), Pakistan, Hindukush, Chitral Valley, Sussoom, 2900–3200 m, 8.VII.2001, leg. V. Tuzov.

COMPARATIVE MATERIAL. *Protapatophysis kashmiriana* (Semenov, 1901): lectotype ♂ (ZIN) (Fig. 5), “Sind River Valley (Kashmir), 7100–7600’, 9.–10.VI.[18]98, Novitzky” [in Russian], “*Apatophys.*[*is*] *kashmiriana* m. ♂ Typ. II.[19]01. A. Semenow det.”, golden circle, “Zoological Institute RAN, St.Petersburg”, “Lectotypus *Apatophysis kashmiriana* Semenov, 1901, M. Danilevsky des., 2010”.

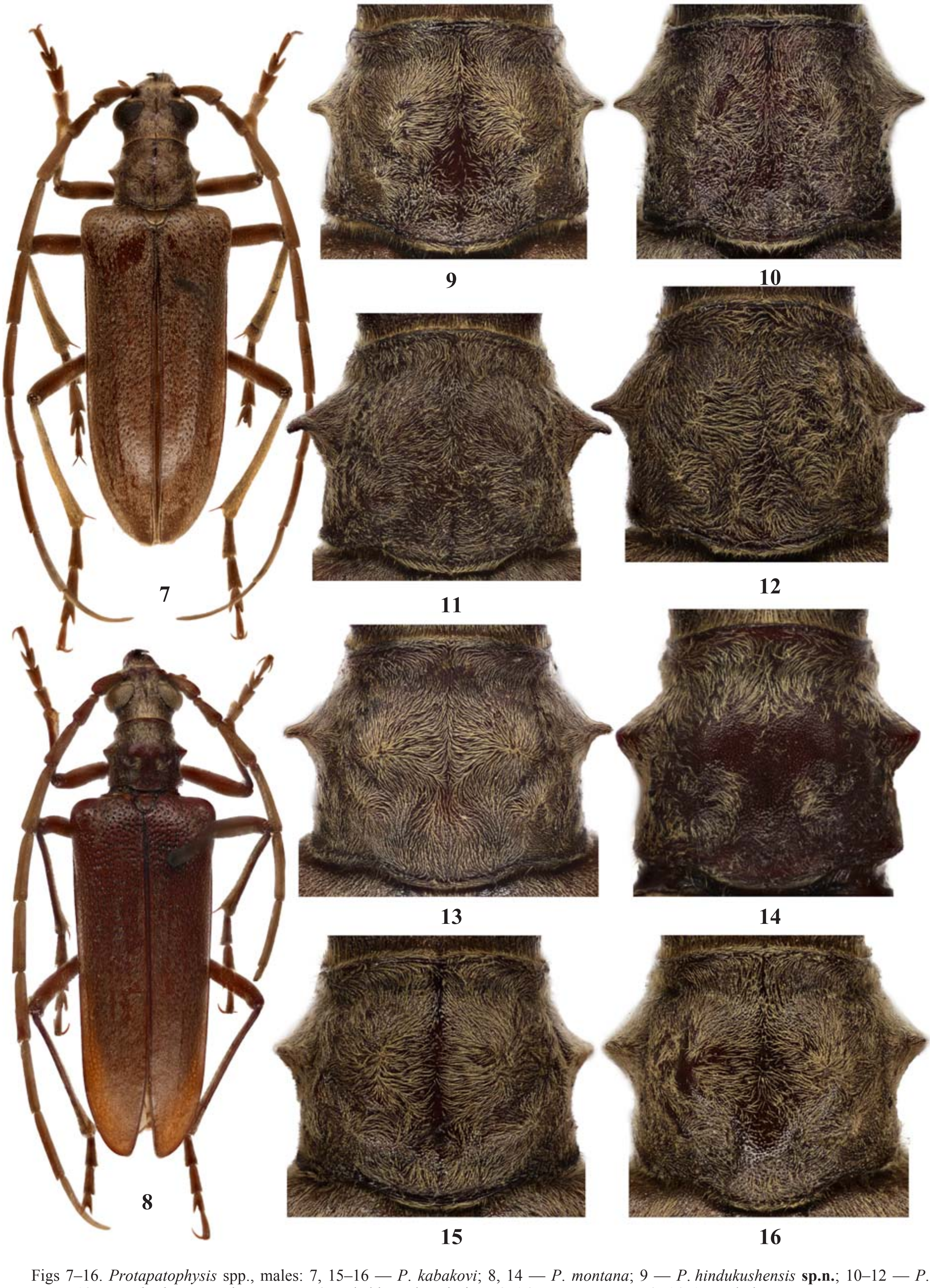
Protapatophysis montana (Gahan, 1906): holotype ♂ (BMNH) (Fig. 8), “Between Gilgit & Nagy. 93–13.”, “*Apatophysis montana,* Gahan Type”, “Type”, “Holotypus *Apatophysis montana* Gahan, 1906” [label by Danilevsky], “*Protapatophysis montana* (Gahan, 1906), M. Danilevsky det. 2010”.

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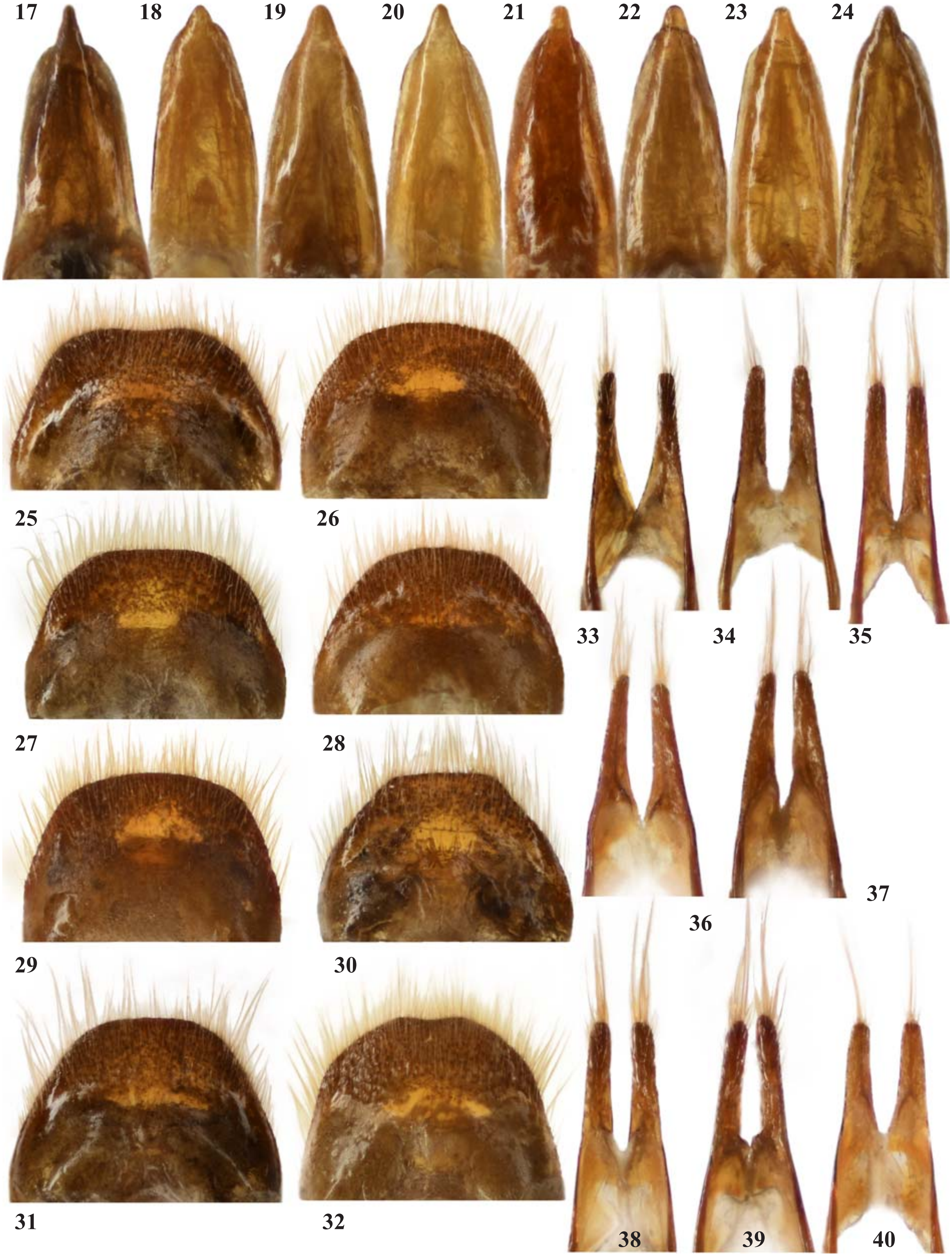
Figs 1–6. *Protapatophysis* spp., males, habitus, dorsal view: 1 — *P. hindukushensis* **sp.n.**, holotype; 2–4 — *P. vartianae*; 5 — *P. kashmiriana*, lectotype; 6 — *P. kabakovi*.

Рис. 1–6. *Protapatophysis* spp., самцы, общий вид, сверху: 1 — *P. hindukushensis* **sp.n.**, голотип; 2–4 — *P. vartianae*; 5 — *P. kashmiriana*, лектотип; 6 — *P. kabakovi*.



Figs 7–16. *Protapatophysis* spp., males: 7, 15–16 — *P. kabakovi*; 8, 14 — *P. montana*; 9 — *P. hindukushensis* **sp.n.**; 10–12 — *P. vartianae*; 13 — *P. kashmiriana*, lectotype; 7–8 — habitus, dorsal view; 9–16 — pronotum; 7–9, 14–15 — holotypes.

Рис. 7–16. *Protapatophysis* spp., самцы: 7, 15–16 — *P. kabakovi*; 8, 14 — *P. montana*; 9 — *P. hindukushensis* **sp.n.**; 10–12 — *P. vartianae*; 13 — *P. kashmiriana*, лектотип; 7–8 — общий вид, сверху; 9–16 — переднеспинка; 7–9, 14–15 — голотипы.



Figs 17–40. *Protapatophysis* spp., male genitalia: 17, 25, 33 — *P. hindukushensis* **sp.n.**; 18–20, 26–28, 34–36 — *P. vartianae*; 21, 29, 37 — *P. kashmiriana*, lectotype; 22–23, 30–31, 38–39 — *P. kabakovi*; 24, 32, 40 — *P. montana*; 17, 22, 24–25, 30, 32, 38, 40 — holotypes; 17–24 — apical part of penis, ventral view; 25–32 — tergite 8, dorsal view; 33–40 — apical part of tegmen, ventral view.

Рис. 17–40. *Protapatophysis* spp., гениталии самца: 17, 25, 33 — *P. hindukushensis* **sp.n.**; 18–20, 26–28, 34–36 — *P. vartianae*; 21, 29, 37 — *P. kashmiriana*, лектотип; 22–23, 30–31, 38–39 — *P. kabakovi*; 24, 32, 40 — *P. montana*; 17, 22, 24–25, 30, 32, 38, 40 — голотипы; 17–24 — вершинная часть пениса, снизу; 25–32 — 8-й тергит, сверху; 33–40 — вершинная часть тегмена, снизу.

Protapatophysis vartianae (Heyrovský, 1971): 1♂ (ZIN) (Fig. 2), "Muzaffarabad on Jhelum [River], 17.V.[19]12, Avinov's expedition" [in Russian], "Zoological Institute RAN, St.Petersburg", "*Protapatophysis vartianae* (Heyrovsky, 1971), M. Danilevsky det. 2010"; 1♂ (cSM) (Fig. 4), "Pakistan, N.W.F. Prov., Mansehra [Distr.], Kaghan Valley, Shogran, 2400 m, 19.VI.2001, leg. K. Stavin", "*Apatophysis modica* Gahan, 1906, S. Murzin det. 2001", "*Protapatophysis vartianae* (Heyrovsky, 1971), M. Danilevsky det. 2010"; 1♂ (Fig. 3) (Danilevsky's collection; but this specimen is kept temporarily in ZIN), "Pakistan, Kohistan, Swat prov., Miandam, 1800 m, 35°10´N, 72°32´E, 25.June — 5.July 1992, lgt. Z. Weidenhoffer", "*Protapatophysis vartianae* (Heyrovsky, 1971), M. Danilevsky det. 2010".

Protapatophysis kabakovi Danilevsky, 2011: holotype ♂ (ZIN) (Fig. 7), "Afghanistan, Nurestan, Awragal, SW Peè-Dara, 2000 m, [at light, in Russian], 18.06.1971 [O. Kabakov, in Russian]", *Apatophysis ?kashmiriana* Sem., det. S. Murzin — 1978" [handwritten by Andrey L. Lobanov], "Holotypus *Protapatophysis kabakovi* sp.n., M. Danilevsky det. 2010"; paratype, ♂ (cSM), same locality as holotype, but taken on 20.06.1971, 1400 m, leg. O. Kabakov, "Paratytpus *Protapatophysis kabakovi* sp.n., M. Danilevsky det. 2010"; 1♂ (ZIN) (Fig. 6), same locality, but taken on 15.06.1971, leg. O. Kabakov, "*Apatophysis kashmiriana* Sem." [handwritten by Oleg N. Kabakov], "*Protapatophysis kabakovi* Danilevsky, 2011 ♂ det. A. Miroshnikov 2019"; 3♂ (cAM), same locality, but taken on 10.06.1971, 17.06.1971 and 20.06.1971, 2000 or 2200 m, leg. O. Kabakov, "*Protapatophysis kabakovi* Danilevsky, 2011 ♂ det. A. Miroshnikov 2012".

DIAGNOSIS. Based on male characters, this new species differs from all congeners by the somewhat peculiar shape of the lateral tubercles of the pronotum, as in Fig. 9 (cf. Figs 10–16), the structure of the genitalia, as in Figs 17, 25, 33 (cf. Figs 18–24, 26–32, 34–40), as well as by the poorly developed discal tubercles of the pronotum and the shorter antennae, especially in comparison with *P. kashmiriana*, *P. vartianae* and *P. kabakovi* (in the latter species, the antennae are sometimes about the same length as in the new species). In addition, *P. hindukushensis* **sp.n.** is distinguished from *P. montana* by the shape of the elytra (in the latter species, the elytra being more strongly elongated and distinctly narrowed towards the apex), while from *P. kashmiriana* and *P. vartianae* by the somewhat less strongly developed eyes.

DESCRIPTION. Male. Body length 22.1 mm, humeral width 6.9 mm. Coloration of integument mainly combines reddish brown and brown tones; eyes and partly mandibles black.

Head at eye level distinctly narrower than pronotum at level of lateral tubercles; antennal tubercles very well-developed; median longitudinal groove between eyes clearly visible; with a small dense puncturation dorsally and partly laterally; eyes relatively strongly convex, shallowly emarginate; genae moderately long; submentum with a shallow rugose and scabrous sculpture; gula with gentle transverse wrinkles, on either side of it with irregular puncturation and wrinkles; antennae extending beyond apex of elytra by penultimate antennomere; length ratio of antennomeres 1–11, 39: 7: 28: 46: 61: 58: 59: 57: 57: 58: 76; antennomere 2 distinctly transverse.

Pronotum very clearly transverse, broadest at level of lateral tubercles where it is 1.3 times as wide as long, base 1.25 times as wide as apex; discal tubercles weakly convex, thereby median tubercle near base not expressed at all; lateral tubercles moderately long, attenuated and sharpened, as in Fig. 9 (in *P. vartianae* and *P. kashmiriana*, lateral tubercles also attenuated and sharpened, but longer, especially so in the former species, as in Figs 10–13, while *P. montana* and *P. kabakovi* with subrectangularly protruded lateral tubercles, as in Figs 14–16); on disc with a small, partly heterogeneous, dense puncturation, being sparser at midline in basal part, thereby in this place forming a very well-expressed shiny area with separate setae, as in Fig. 9.

Scutellum widely rounded apically, with very small dense punctures.

Elytra barely narrowed towards apex, look nearly parallel-sided, 2.16 times as long as humeral width; with a rough, relatively regular, moderately dense puncturation being weakened near apex; rounded apically.

Pro- and mesosterna with a clear, transverse, rugose sculpture; metasternum and visible sternites with a small, dense puncturation; metasternum with a sharp median suture; last (visible) sternite very widely, shallowly emarginate apically; last (visible) tergite subtruncate, with a distinct, but not too deep, narrow emargination at apex.

Legs long; femora and tibiae of normal structure; metatarsomere 1 clearly shorter than next two metatarsomeres combined.

Recumbent setation mainly grayish, partly yellowish, being most dense on head dorsally, pronotum, scutellum and tibiae, on elytra poorly hiding their puncturation; erect and suberect, numerous, long setae focused mainly on femora, tibiae, abdominal apex, partly on head.

Genitalia (Figs 17, 25, 33). Apical part of penis as in Fig. 17; dorsal lobe relatively broadly rounded apically, very distinctly wider than ventral lobe near apex (while in other congeners, dorsal lobe narrower rounded apically, as in Figs 18–24, more or less evidently (but not so clearly) wider than ventral lobe near apex); in addition, ventral lobe



41 42 43 44

Figs 41–44. *Protapatophysis* spp., males, scutellum: 41 — *P. kashmiriana*, lectotype; 42–44 — *P. vartianae*.
Рис. 41–44. *Protapatophysis* spp., самцы, щиток: 41 — *P. kashmiriana*, лектотип; 42–44 — *P. vartianae*.

very noticeably extending beyond apex of dorsal lobe, as in Fig. 17 (while in other congeners, ventral lobe somewhat less clearly extending beyond apex of dorsal lobe, as in Figs 18–24). Tergite 8 distinctly broadly emarginate apically, as in Fig. 25 (while in *P. kashmiriana*, *P. vartianae* and *P. kabakovi*, tergite 8 widely rounded or subtruncate at apex, as in Figs 26–31; only in *P. montana*, tergite 8 emarginate apically, but not so widely, as in Fig. 32). Apical part of tegmen as in Fig. 33 (in other congeners, apical part of tegmen as in Figs 34–40).

ETYMOLOGY. The epithet of this new species is formed on the basis of the name of the locality it supports.

DISTRIBUTION. Northern Pakistan: Hindukush Mountain Range.

BIONOMICS. The holotype was collected at about 3000 m elevations. This is the highest locality amongst all members of the genus.

KEY TO SPECIES OF *PROTAPATOPHYSIS*, BASED ON ♂ CHARACTERS

1. Lateral tubercles of pronotum attenuated and sharpened, as in Figs 9–13 2
— Lateral tubercles of pronotum subrectangularly protruded, as in Figs 14–16 4
2. Lateral tubercles of pronotum longer, as in Figs 10–13; pronotal disc with or without poorly expressed shiny area in basal part at midline, as in Figs 10–13; antennae longer, as in Figs 2–5; apical part of both penis and tergite 8 as in Figs 18–21, 26–29 3
— Lateral tubercles of pronotum shorter, as in Fig. 9; pronotal disc with a very well-expressed shiny area in basal part at midline, as in Fig. 9; antennae shorter, as in Fig. 1; apical part of both penis and tergite 8 as in Figs 17, 25 .... *P. hindukushensis* **sp.n.**
3. Median longitudinal groove between upper lobes of eyes noticeably extends beyond the line connecting their lower margins; scutellum distinctly triangular, narrowly rounded at apex, as in Fig. 41; pronotal disc with a less sharply expressed puncturation .... *P. kashmiriana* (Semenov)
— Median longitudinal groove between upper lobes of eyes distinctly does not reach the line connecting their lower margins; scutellum widely rounded at apex, as in Figs 42–44; pronotal disc with a more sharply expressed puncturation .... *P. vartianae* (Heyrovský)
4. Elytra more strongly elongated, distinctly narrowed towards apex, as in Fig. 8; tergite 8 emarginate apically, as in Fig. 32 .... *P. montana* (Gahan)
— Elytra less strongly elongated, barely narrowed towards apex, as in Figs 6–7; tergite 8 widely rounded or subtruncate apically, as in Figs 30–31 .... *P. kabakovi* Danilevsky

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